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CS2263

Assignment 1

January 26th, 2024

UNB Fredericton

**Class** **Code**: Cs2263

**Document**: Assignment 1

**Student** **Name**: Will Ross #3734692

**Due** **Date**: January 29th, 2024

**Exercise 1**

*Source Code:*

#include <stdio.h>

void printArr(char a[], int n){

//just a for loop to go through char array

for(int i = 0; i < (n-1); i++){

putchar(a[i]);

}

//new line after complete

putchar('\n');

}

int main(){

char message[] = "Hello World";

char message2[] = "Will Ross";

char message3[] = "3734692";

char message4[] = "January 26th, 2024";

//test 1

int arrayLength = sizeof(message)/ sizeof(message[0]);

//printArr(message, arrayLength);

//test 2

int array2Length = sizeof(message2)/ sizeof(message2[0]);

//printArr(message2, array2Length);

//test 3

int array3Length = sizeof(message3)/ sizeof(message3[0]);

//printArr(message3, array3Length);

//test 4

int array4Length = sizeof(message4)/ sizeof(message4[0]);

printArr(message4, array4Length);

return 0;

}

*Output:*

**Test 1:**

Hello World

**Test 2:**

Will Ross

**Test 3:**

3734692

**Test 4:**

January 26th, 2024

**Exercise 2**

*Source Code:*

#include <stdio.h>

void printReversed(int n){

if(n <= 0){

//new line after complete

putchar('\n');

}

else{

//prints the value of mod n which will be the last digit

putchar('0' + n % 10);

//calls method again until n is empty

printReversed(n /= 10);

}

}

void printArr(char a[], int n){

//just a for loop to go through char array

for(int i = 0; i < (n-1); i++){

putchar(a[i]);

}

//new line after complete

putchar('\n');

}

int main(){

int number = 1;

int number1 = 100021;

int number2 = 1263;

int number3 = 2263;

//test 1

//printReversed(number);

//test 2

//printReversed(number1);

//test 3

//printReversed(number2);

//test 4

//printReversed(number3);

return 0;

}*Output:*

**Test 1:**

1

**Test 2:**

120001

**Test 3:**

3621

**Test 4:**

3622

**Exercise 3**

*Source Code:*

#include <stdio.h>

#include <ctype.h>

void printArr(char a[], int n){

//just a for loop to go through char array

for(int i = 0; i < (n-1); i++){

putchar(a[i]);

}

//new line after complete

putchar('\n');

}

void printReversed(int n){

if(n <= 0){

//new line after complete

putchar('\n');

}

else{

//prints the value of mod n which will be the last digit

putchar('0' + n % 10);

//calls method again until n is empty

printReversed(n /= 10);

}

}

int convertInt(char a[], int n){

//int value to return

int toReturn = 0;

//to get num values

for(int i = n - 1; i >= 0 && isdigit(a[i]); i--){

toReturn = (a[i] - '0') + 10 \* toReturn;

}

return toReturn;

}

int printInt(int num) {

//method to reverse integers to get them read to be printed

int reversed = 0;

while (num != 0) {

int curr = num % 10;

reversed = reversed \* 10 + curr;

num /= 10;

}

printReversed(reversed);

}

int main(){

char one[] = "\nTest 1:";

char two[] = "\nTest 2:";

char three[] = "\nTest 3:";

char four[] = "\nTest 4:";

int testSize = 10;

// Test 1

printArr(one, testSize);

char a[] = {'3','2','1'};

int arrayIntLength = sizeof(a)/ sizeof(a[0]);

printInt(convertInt(a, arrayIntLength));

// Test 2

printArr(two, testSize);

char a1[] = {'1', '2', '3'};

int len1 = sizeof(a1) / sizeof(a1[0]);

printInt(convertInt(a1, len1));

// Test 3

printArr(three, testSize);

char a2[] = {'5'};

int len2 = sizeof(a2) / sizeof(a2[0]);

printInt(convertInt(a2, len2));

// Test 4

printArr(four, testSize);

char a3[] = {'0', '0', '7'};

int len3 = sizeof(a3) / sizeof(a3[0]);

printInt(convertInt(a3, len3));

return 0;

}

*Output*

**Test 1:**

123

**Test 2:**

321

**Test 3:**

5

**Test 4:**

7

**Exercise 4**

*Source Code:*

#include <stdio.h>

#include <ctype.h>

void printArr(char a[], int n){

//just a for loop to go through char array

for(int i = 0; i < (n-1); i++){

putchar(a[i]);

}

//new line after complete

putchar('\n');

}

void printReversed(int n){

if(n <= 0){

//new line after complete

putchar('\n');

}

else{

//prints the value of mod n which will be the last digit

putchar('0' + n % 10);

//calls method again until n is empty

printReversed(n /= 10);

}

}

int convertInt(char a[], int n){

//int value to return

int toReturn = 0;

//to get num values

for(int i = n - 1; i >= 0 && isdigit(a[i]); i--){

toReturn = (a[i] - '0') + 10 \* toReturn;

}

return toReturn;

}

int printInt(int num) {

//method to reverse integers to get them read to be printed

int reversed = 0;

while (num != 0) {

int curr = num % 10;

reversed = reversed \* 10 + curr;

num /= 10;

}

printReversed(reversed);

}

int addReversedInt(char a[], int n, char b[], int m){

//runs both inputs through convert int and added the sum

int num1 = convertInt(a, n);

int num2 = convertInt(b, m);

return (num1 + num2);

}

int main(){

char one[] = "\nTest 1:";

char two[] = "\nTest 2:";

char three[] = "\nTest 3:";

char four[] = "\nTest 4:";

int testSize = 10;

// Test 1

printArr(one, testSize);

char a[] = {'3','2','1'};

int arrayALength = sizeof(a)/ sizeof(a[0]);

char b[] = {'6','5','4'};

int arrayBLength = sizeof(b)/ sizeof(b[0]);

printInt(addReversedInt(a, arrayALength, b, arrayBLength));

// Test 2

printArr(two, testSize);

char a1[] = {'3','5','3'};

int arrayA1Length = sizeof(a1)/ sizeof(a1[0]);

char b1[] = {'0','1','9'};

int arrayB1Length = sizeof(b1)/ sizeof(b1[0]);

printInt(addReversedInt(a1, arrayA1Length, b1, arrayB1Length));

// Test 3

printArr(three, testSize);

char a2[] = {'3','3','3'};

int arrayA2Length = sizeof(a2)/ sizeof(a2[0]);

char b2[] = {'6','8','1'};

int arrayB2Length = sizeof(b2)/ sizeof(b2[0]);

printInt(addReversedInt(a2, arrayA2Length, b2, arrayB2Length));

// Test 4

printArr(four, testSize);

char a3[] = {'1','2','1','2'};

int arrayA3Length = sizeof(a3)/ sizeof(a3[0]);

char b3[] = {'6','5','4'};

int arrayB3Length = sizeof(b3)/ sizeof(b3[0]);

printInt(addReversedInt(a3, arrayA3Length, b3, arrayB3Length));

return 0;

}

*Output:*

**Test 1:**

579

**Test 2:**

1263

**Test 3:**

519

**Test 4:**

2577

**Exercise 5**

*Source Code:*

#include <stdio.h>

#include <ctype.h>

#include <string.h>

void printArr(char a[], int n){

//just a for loop to go through char array

for(int i = 0; i < (n-1); i++){

putchar(a[i]);

}

//new line after complete

putchar('\n');

}

void printReversed(int n){

if(n <= 0){

//new line after complete

putchar('\n');

}

else{

//prints the value of mod n which will be the last digit

putchar('0' + n % 10);

//calls method again until n is empty

printReversed(n /= 10);

}

}

int convertInt(char a[], int n){

//int value to return

int toReturn = 0;

//to get num values

for(int i = (n-1); i >= 0 && isdigit(a[i]); i--){

toReturn = (a[i] - '0') + 10 \* toReturn;

}

return toReturn;

}

int addReversedInt(char a[], int n, char b[], int m){

//gets the sum of the char integers

int num1 = convertInt(a, n);

int num2 = convertInt(b, m);

return num1 + num2;

}

void inputRead(char input[]){

char curr;

int i = 0;

//reads in values until there is a newline

while ((curr = getchar()) != '\n' && i < 9) {

input[i++] = curr;

}

//ends

input[i] = '\0';

}

void calculator(){

//start message

char message[] = "\nEnter to unsigned interger numbers: ";

int promtLength = sizeof(message)/sizeof(message[0]);

printArr(message, promtLength);

//set num arrays for the user inputs

char num1[10];

char num2[10];

//function to read in values

inputRead(num1);

inputRead(num2);

//gets string length of our inputs

int num1Length = strlen(num1);

int num2Length = strlen(num2);

//gets the sum of the added reversed nums

int result = addReversedInt(num1, num1Length, num2, num2Length);

//Final message code

char resultMes[] = "Results: ";

int resultMesLength = sizeof(resultMes)/sizeof(resultMes[0]);

printArr(resultMes, resultMesLength);

//prints the results of the reversed Int

printReversed(result);

}

int main(){

//calls our calculator class

calculator();

return 0;

}

*Output:*

**Test 1:**

Enter to unsigned interger numbers:

321

52

Results:

841

PS C:\Users\willr\Documents\GitHub\Cs2263\Assignments\Assignment1>

**Test 2:**

Enter to unsigned interger numbers:

652

98

Results:

543

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**Test 3:**

Enter to unsigned interger numbers:

1

685412

Results:

785412

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